










Date: Wednesday, 02/04/2008 3:39:28 PM  
 User: Julie Lecocq

## Process Sheet

Customer : CU-DAR001 Dart Helicopters Services	Drawing Name : X-TUBE EXTRUSION OH-58
Job Number : 38337	
Estimate Number : 10005	
P.O. Number :	Part Number : D6005128
This Issue : 02/04/2008 S.O. No. :	Drawing Number : D6005 REV A
Prsht Rev. : NC	Project Number : N/A
First Issue : / / Type : LANDING GEAR	Drawing Revision : A
Previous Run : 34775	Material :
Written By :	Due Date : 26/09/2008 Qty: 28 Um: Each
Checked & Approved By : <u>JD 08.04.03</u>	
Comment : Est Rev:C 04.06.15 Added tolerance to Step 2 KJ/JLM	
Additional Product	
Job Number: 	
Seq. #:	Machine Or Operation: Description :
1.0 PG	PURCHASING
	
Comment: PURCHASING	
Issue P/O: <u>6063</u> <u>C208/04/04</u> (28) a) Order as per Dwg D6005 b) Material: 2.750 x 0.375 wall 7075-T6/T6511 (WW-T-700/7 or QQ-A-225/9 or QQ-A-200/11) seamless aluminum tube c) Minimum ultimate tensile strength = 77 ksi d) Minimum tensile yield strength = 66 ksi e) Tolerance are per ASTM B210 (see details on Dwg D6005) f) Material certification required	
2.0 D6005128P	Crosstube material
	
Comment: Qty.: 1.0000 Each(s)/Unit Total : 28.0000 Each(s) Crosstube material	
3.0 PACKAGING 1	PACKAGING RESOURCE #1
	
Comment: PACKAGING RESOURCE #1 Receive & Inspect For Transit Damage Ensure material certification is attached	
4.0 QC6	DIMENSIONAL CHECK
	
Comment: DIMENSIONAL CHECK Ensure Material certification comply to Dwg D6005	

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

Date: Wednesday, 02/04/2008 3:39:29 PM  
User: Julie Lecocq

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE EXTRUSION OH-58

Job Number: 38337

Part Number: D6005128

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

*Handwritten signature/initials*

6.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

7.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: *X tube cell*

*LT 08-09-17(29)*

8.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

*08/09/18*  
*[Signature]*

Job Completion



*in 08-09-18*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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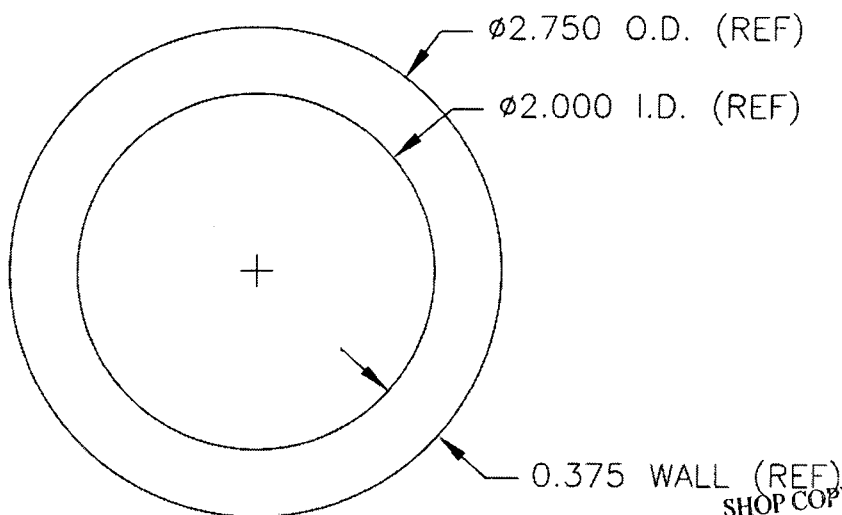
NOTE: Date & initial all entries



DESIGN <i>CP</i>	DRAWN BY <i>CP</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>A</i>	APPROVED <i>A</i>	DRAWING NO. D6005	REV. A SHEET 1 OF 1
DATE 00.11.17		TITLE CROSSTUBE MATERIAL	SCALE 1:1
A	00.11.17	NEW ISSUE	

## SPECIFICATION CONTROL DRAWING

RELEASED  
00.11.24 *A*



### NOTES

- 1) D6005-XXX CROSSTUBE  
LENGTH

WHERE XXX IS LENGTH IN INCHES  
EG. 128" LONG TUBE: D6005-128

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SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 38337

- 2) MATERIAL: 2.750 OD x 0.375 WALL 7075-T6/T6511 (WW-T-700/7 OR QQ-A-225/9 OR QQ-A-200/11) SEAMLESS ALUMINUM TUBE.  
MINIMUM ULTIMATE TENSILE STRENGTH = 77 ksi  
MINIMUM YIELD TENSILE STRENGTH = 66 ksi
- 3) TOLERANCES ARE PER ASTM B210 AS FOLLOWS:  
O.D.:  $\pm 0.006$  MEAN ( $\pm 0.012$  INCLUDING OVALITY)  
WALL:  $\pm 0.015$  MEAN ( $\pm 0.038$  INCLUDING ECCENTRICITY)  
LENGTH: XXX  $+0.125/-0.000$   
STRAIGHTNESS: 0.010" DEVIATION / 12" LENGTH
- 4) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 5) CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

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<b>Customer PO</b>	<b>PO: 00006063</b>
<b>ALUnna ref. no.</b>	<b>29104/6</b>
<b>Date:</b>	<b>08.14.08</b>

Dart Aerospace PO. 00006063
Made in Germany
Dest, Hawkesbury Ont. Canada

**free from live plant pests**

[illegible]

Boall

# Abnahmeprüfzeugnis 3.1 - EN 10204:2004

Inspection Certificate 3.1 - EN 10204:2004 / Certificat de Reception 3.1- EN 10204:2004

**Kunde:** Dart Aerospace Ltd.  
**Client:**

1270 Aberdeen Street  
K6A1K7 Hawkesbury, ON Canada

**Zeugnisnummer:** 1206/08

**Cert No. / No. du certificat:**

**Bestellnummer:** PO00006063

**Order No. / No. de commande**

**Auftrag:** 29104/6

**Our Reference/Notre Reference:**

**Produkt:** Rohre nahtlos gepresst

**Product / Produit:** Tubes seamless extruded

**Spezifikation:** AMS - QQ - A - 200/11E; Spezifikation Dart Aerospace 6005

**Specification:**

**Werkstoff:** 7075

**Alloy/Alliage:**

**Zustand:** T 6511

**Temper/État**

**Abmessung:** 2,750 INCH x 2,000 INCH x 0,375 INCH x 128,000 INCH

**Size / Dimension:** D6005-128 2.750 x 0.375 x 128

**Kennzeichnung:** ALUnna - Cert No. 1206/08 - 7075 - T 6511 - Cast No. 1233 - AMS - QQA 200/11 - 2.750" OD X 0.375" Wall - Heat

**Marking/Marquage:** Lot No. 1840 - ALUnna Order Conf. No. 29104/6-1 PO. 00006063

**Lieferung**

pcs.

lbs

**Country of Manufacture: Germany**

**Delivered Material / Matériel délivré:**

29

1054

## 1. Chemische Analyse

## Chemical Analysis / analyse chimique

	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Ni
Charge/ min.			1,2		2,1	0,18	5,1						
Cast No. max.	0,40	0,50	2,0	0,30	2,9	0,28	6,1	0,20					
1233/08	0,121	0,194	1,395	0,055	2,457	0,196	5,775	0,040	0,002	0,0179	0,0001	0,0011	0,0002

**Hydrogen content:** 0,10

**ccm/100 g Al** Elements without indication < 0,01 %

**country of melt manufacturer: Germany**

## 2. Mechanische Eigenschaften

## Mechanical Properties / Valeurs Mécaniques

Anforderungen Requirements	tensile (Rm) ksi	yield (Rp0,2) ksi	elongation 2" %	elongation A %	Hardness HB	Heat Lot No.
min.	77,0	66,0				
max.						
1	86,855	80,185	11,0			1840 - 29 pcs.
2	86,420	79,605	11,0			

*Solberg*

RMS outside 25 - max. 20,8 µ"

**Ergebnis der Prüfungen:**

Es wird bestätigt, daß die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellannahme entspricht

**Test results:**

We confirm that the delivery has been tested and applies to the agreements made on receipt of the order

**Resultats:**

Nous confirmons que la livraison a été contrôlée et correspond avec les conventions faites à la réception de la commande

Kramper



Certified acc. DIN EN ISO 9001:2000 and DIN EN 9100:2003

valid until 2010-11-11

Cert. - Reg. No.: 001959 QM; 001959 ASH

**ALUnna**

Abnahmebeauftragter

15.08.2008

Aluminiumwerk Unna AG, Uelzener Weg 36, 59425 Unna, Germany